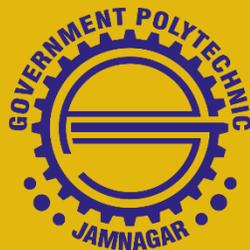


Electronics and Communication Engineering Department Government Polytechnic Jamnagar

Resonance

Vol-III Issue-2 July-2023



Editor
Mr. S A Pithia
Lecturer ECE
ECE Department
G P Jamnagar

Sub Editor
Mr. Hem Vadgama
Student Coordinator
ECE Department
G P Jamnagar

Principal's Desk



Shree. H. J. Baldaniya

Dear Students and Faculty Members, Government Polytechnic Jamnagar is moving ahead on many fronts. In this period consistent efforts and hard work have resulted in overall progress of college. I congratulate and appreciate the efforts of all involved in the process.

Message from hod



Shree A M Bhatt

It is a pleasure to head the Department of EC Engineering in Government Polytechnic Jamnagar. We are a team of experienced and motivated faculty members who are in the process of tuning the young engineers through an innovative teaching learning process. Highly motivated students are our strong team members too, who are always eager to grab the opportunity to improve their skills.

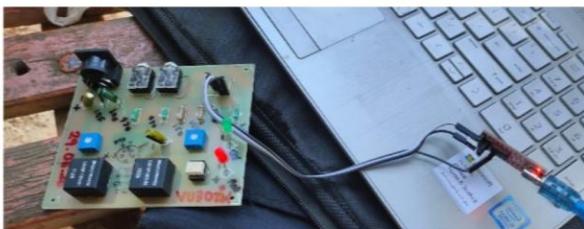
the visit to the HAM Radio Station at GOP, Jamnagar, which took place on 25th February 2023. The visit was organized by the Electronics and Communication (EC) Engineering Department of Government Polytechnic, Jamnagar that includes students and faculties of EC



Ham Radio receiver



VHF power Meter



Digital Ham radio receiver



VHF antenna

Digital Ham radio receiver

VHF antenna

Government Polytechnic Jamnagar received honour for third rank in Swachh city ranking under Government office category by Jamnagar Municipal corporation for the year 2023



NSS PERFORMED Thalassemia Test AS ON 18/5/23



SemiconIndia 2023



of EC department have organized inauguration ceremony for the students those who have taken new admission in EC branch of Government polytechnic, Jamnagar in the year 2023.



The Rise of Contactless Temperature Measurement Technology

By: Jigar Bheda, Enrollment No.: 206250311006

& Yash Mehta Enrollment No.: 206250311006

Introduction to a Touch-Free Future

In our increasingly health-conscious society, contactless temperature measurement has emerged as a vital tool for maintaining public safety while minimizing physical contact. This innovative technology, which gained widespread adoption during the COVID-19 pandemic, represents a significant leap forward in medical screening and public health protocols. Unlike traditional thermometers that require skin contact, these advanced systems use infrared sensors to detect body heat from a safe distance, offering a hygienic solution for temperature checks in high-traffic environments. From hospitals to airports, schools to corporate offices, contactless thermometers have become ubiquitous fixtures in our daily lives, seamlessly blending into security checkpoints and entryways as silent guardians of public health.



The Science Behind the Technology

At the heart of contactless temperature measurement lies infrared thermometry, a sophisticated yet straightforward principle of physics. Every object emits infrared radiation corresponding to its temperature, and the human body is no exception. Modern contactless thermometers contain specialized sensors that detect this thermal radiation, typically focusing on the forehead or temporal artery where blood flow is closest to the skin's surface. The device's optical system collects the infrared energy emitted by the body and focuses it onto a detector, which converts the radiation into an electrical signal. This signal is then processed through complex algorithms that account for environmental factors and calibration offsets, ultimately displaying an accurate temperature reading in a matter of seconds. More advanced systems incorporate thermal imaging cameras that can scan multiple individuals simultaneously, using color gradients to visually represent temperature variations across a crowd.



Balancing Benefits with Practical Considerations

The advantages of contactless temperature measurement are numerous and significant. The elimination of physical contact dramatically reduces infection transmission risks, while the speed of measurement—typically under one second—allows for efficient screening of large groups. These devices are particularly valuable in paediatric care, where they eliminate the discomfort associated with traditional thermometers. However, the technology does face certain limitations that users should understand. Accuracy can be affected by environmental conditions, physical activity, or even the presence of sweat on the skin. Proper usage technique is crucial, requiring operators to maintain the correct distance and angle for reliable readings. Additionally, while basic infrared thermometers are relatively affordable, enterprise-grade thermal imaging systems represent a substantial investment that may be prohibitive for some organizations.

The Road Ahead: Innovations on the Horizon

As the technology continues to evolve, we're seeing exciting developments that promise to enhance both capability and accessibility. Next-generation devices are incorporating artificial intelligence to improve accuracy by analyzing multiple data points simultaneously. Some prototypes can now measure both temperature and vital signs like heart rate and respiratory rate from a distance. Integration with the Internet of Things (IoT) is enabling networked temperature monitoring systems that can track health trends across entire facilities. Looking further ahead, researchers are exploring the potential of smartphone-based thermal imaging and wearable temperature monitors that could democratize access to this technology. These advancements suggest that contactless temperature measurement will likely become even more embedded in our daily routines, potentially expanding beyond medical applications into areas like smart home systems and personal wellness monitoring.



Conclusion: A Lasting Impact on Health and Safety

Contactless temperature measurement has proven to be more than just a temporary response to a global health crisis—it represents a permanent shift in how we approach health screening and safety protocols. As the technology becomes more sophisticated and affordable, its applications will continue to multiply across various sectors of society. While not without its limitations, the benefits of reduced infection risk, operational efficiency, and user comfort make a compelling case for its continued use. In our increasingly interconnected world, where the rapid identification of potential health risks can make all the difference, contactless temperature measurement stands as an important tool in our collective effort to maintain public health while preserving personal convenience and dignity.